Listing of Claims:

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Claim 1. (currently amended): A method for identifying the source of crosstalk disturbance in a subscriber loop comprising the steps of:

measuring the power spectral density of the noise present on a subscriber loop;

correlating the power spectral density for said subscriber loop with a predetermined set of power spectral densities for a group of possible crosstalk disturbers; and,

selecting the crosstalk disturber having the most closely correlated power spectral density.

Claim 2. (original): The method of claim 1 further comprising the steps of:

subtracting the power spectral density for the selected crosstalk disturber from the measured power spectral density of said subscriber loop using spectral subtraction to generate a residual power spectral density;

correlating the residual power spectral density with the predetermined set of power spectral densities for the group of possible crosstalk disturbers; and,

selecting the crosstalk disturber having the most closely correlated power spectral density.

Claim 3. (currently amended): The method of claim ~~1~~ 2 wherein the steps of subtracting, correlating and selecting are iteratively performed until the correlation coefficient for the most closely correlated power spectral density falls below a predetermined correlation threshold.

Claim 4. (original): The method of claim 3 wherein the predetermined correlation threshold is between approximately 0.7 to approximately 0.99.

Claim 5. (original): The method of claim 3 wherein the predetermined correlation threshold is approximately 0.9.

Claim 6. (original): The method of claim 2 wherein negative power spectrum densities resulting from said subtracting step are mapped into a non-negative value.

Claim 7. (currently amended): The method of claim ~~5~~ 6 wherein the mapping function is defined as:

$$T\left[\left|\tilde{C}_{i+1}(f)\right|^2\right]=\begin{cases}\left|\tilde{C}_{i+1}(f)\right|^2, & \text{if } \left|\tilde{C}_{i+1}(f)\right|^2>\beta\left|C_i(f)\right|^2\\ \Phi\left[\left|C_i(f)\right|^2\right], & \text{otherwise}\end{cases}$$

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Claim 8. (original): The method of claim 2 further comprising the step of sending the identity of the selected crosstalk disturber to a system for spectrum management of a system having a plurality of bundled subscriber loops.

Claim 9. (currently amended): An apparatus for identification of the source of crosstalk disturbance in a subscriber loop comprising:

a means for inputting a signal indicative of the power spectral density of the noise present on a subscriber loop;

a means for correlating the signal indicative of the power spectral density for said subscriber loop with a predetermined set of power spectral densities for a group of possible crosstalk disturbers; and,

a means for selecting the crosstalk disturber having the most closely correlated power spectral density.

Claim 10. (original): The apparatus of claim 9 further comprising:

a means for subtracting the power spectral density for the selected crosstalk disturber from the signal indicative of the measured power spectral density of said subscriber loop using spectral subtraction to generate a residual power spectral density.

Claim 11. (original): The apparatus of claim 10 further comprising:

a means for mapping negative residual power spectral densities into a non-negative value.

Claim 12. (original): The apparatus of claim 11 wherein the mapping function is defined as:

$$T\left[\left|\tilde{C}_{i+1}(f)\right|^2\right]=\begin{cases}\left|\tilde{C}_{i+1}(f)\right|^2, & \text{if } \left|\tilde{C}_{i+1}(f)\right|^2>\beta\left|C_i(f)\right|^2\\ \Phi\left[\left|C_i(f)\right|^2\right], & \text{otherwise}\end{cases}$$